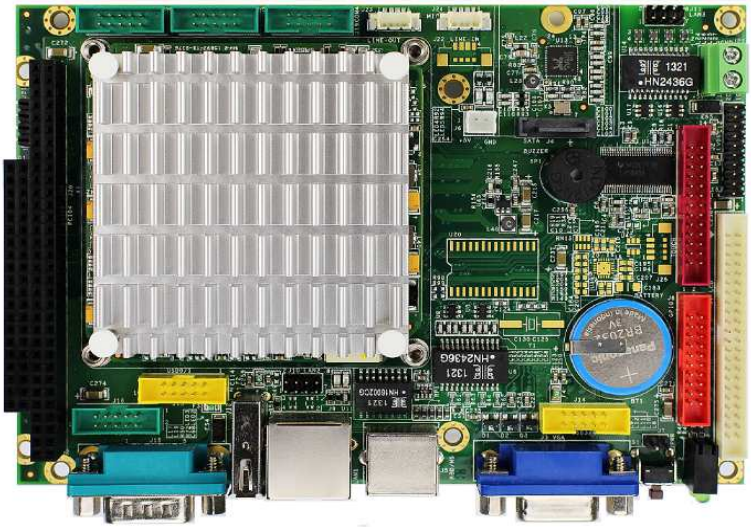
intelligent control on processor



VDX2-6526

DM&P Vortex86DX2 800MHz

3.5” CPU Module

with 4S/4USB/VGA/LCD/LVDS/AUDIO/ 3LAN/GPIO/PWMx16

512MB/1GB DDR2 Onboard

User’s Manual

(Revision 1.2A)

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Chapter 1

Introduction

1.1 Packing List

Product Name	Package
SOM304D2-6526	● Vortex86DX2 base Board ● RS232 cable x 4 ● PRINTER cable x1 ● USB cable x 2 (USB port x 3) ● VGA cable x 1 ● LAN cable x 2 ● GPIO cable x 1 ● AUDIO Line x2 ● Screw Kit x 1
SOM304D2 CPU Module	● Embedded Vortex86DX2 CPU All-in-One Board

1.2 Product Description

The VDX2-6526 family of low-power x86 embedded controller is designed to meet 3.5" specification, and integrated with the following features.

- 800 MHz Vortex86DX2 SoC
- VGA, TFT/ LVDS LCD support up to 1280x1024 resolution
- 512MB/ 1GB DDR2 system memory
- 10/100/1000 Mbps Ethernet
- 4 USB 2.0 (host)
- Up to 4 serial ports
- Parallel port
- 16-bit GPIOs
- Audio
- Onboard 4MB SPI Flash
- Meet PC/104 stacking spec.
- 2 watchdog timer
- PWM 16~24 channels
- JTAG interface
- AMI BIOS
- Single voltage +5V DC
- Support operating temperature range of -10°C to +60°C

The VDX2-6526 3.5" family of embedded controller is designed with backward compatibility in mind, to provide migration path for projects facing end-of-life challenges with their existing x86 based 3.5" controller. The VDX2-6526 family of controller is designed as a plug in replacement, with backward compatibility to support legacy software to help extend existing product life cycle without heavy re-engineering.

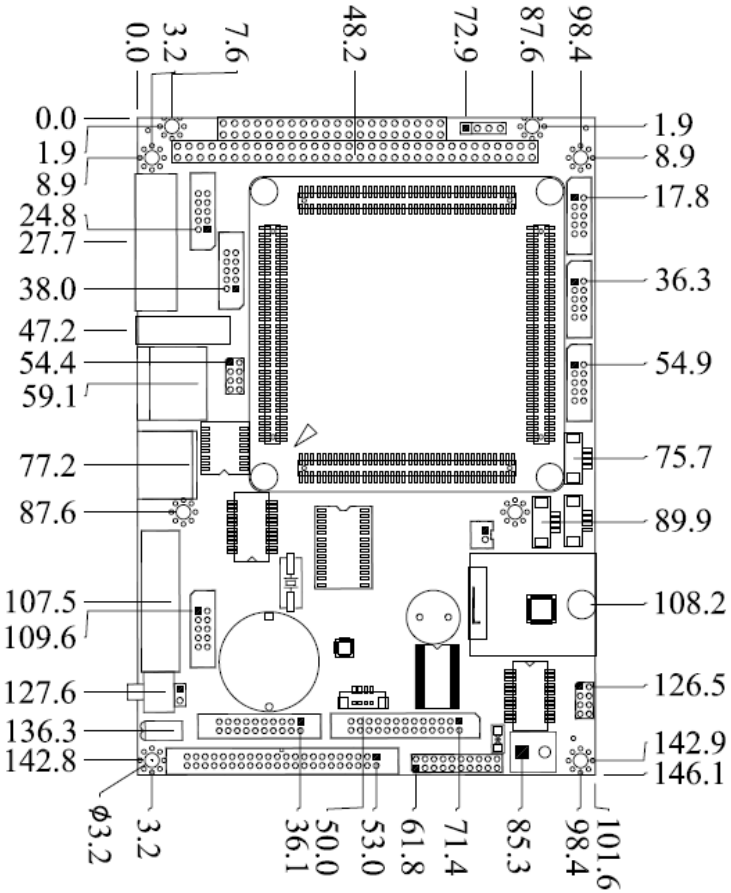
VDX2-6526 is suitable for broad range of data-acquisition, industrial automation, process control, automotive controller, AVL, intelligent vehicle management device, medical device, human machine interface, robotics, machinery control and more.

1.3 Specifications

Features	VDX2-6526
CPU	DM&P SoC CPU Vortex86DX2- 800MHz Real Time Clock with Lithium Battery Backup
Cache	L1:16K I-Cache, 16K D-Cache L2:256KB Cache
BIOS	AMI BIOS
Bus Interface	PC/104 Standard Compliant
System Memory	512MB/ 1 GB DDR2 Onboard
Watchdog Timer	Software programmable from 30.5 us to 512 seconds x2 sets(Watchdog 1 fully compatible with M6117D)
VGA	Integrated 2D VGA chip VGA and TFT/LVDS Flat Panel Interface Support(Either VGA or LCD) Share system memory 16MB/32MB Mono, DSTN, STN, TFT Flat Panel interface support & resolution up to 1280x1024, 16M colors
LAN	Integrated 10/100M Ethernet x1 Realtek 8111F 10/100/1000Mbps Ethernet x2
AUDIO	ALC 262 (HD Audio)
Touch Controller	PS/2 interface (Optional)
I /O Interface	• SATA 7P Connector x 1 • RS-232/485 port x4 • Parallel port x1 • USB port x4 (USB 2.0 version) • USB hot SWAP x 1 (Optional) • 16-bit GPIO port x1 • 10/100Mbps Ethernet port x1 • 10/100/1000 Mbps Ethernet port x2

Connectors	• SATA 7P for SATA x 1 • 2.00 mm ∅ 44-pin box header for LCD x 1 • 2.00 mm ∅ 26-pin box header for Printer x1 • 2.00 mm ∅ 20-pin box header for 16-bit GPIO x1 • 2.00 mm ∅ 20-pin header for LVDS x 1 • 2.00 mm ∅ 10-pin box header for VGA x1 • 2.00 mm ∅ 10-pin box header for USB x2 • 2.00 mm ∅ 10-pin box header for RS-232 x3 • 2.00 mm ∅ 8-pin header for Ethernet x 2 • 2.54 mm ∅ 4-pin header for DC-in x1 • 2.54 mm ∅ 2-pin header for Reset x1 • 1.25 mm ∅ 4-pin Wafer for Line-out/MIC-in x2 • 1.25 mm ∅ 4-pin Wafer for Touch screen x1(Optional) • External RJ-45 connector for Ethernet x1 • External Mini DIN connector for KBD/Mouse x1 • External D-Sub 15 pin female connector for VGA x1 • External D-Sub 9 pin male connector for RS232 x1
Flash Disk Support	Onboard 4MB SPI Flash Disk (Driver: A)
PWM	16 channels
Power Requirement	Single Voltage +5V @1A
Dimension	102 X 146mm (4.01 x 5.75 inches)
Weight	150g
Operating Temperature	-10°C ~ +60°C
Operating System Support	Free DOS, DOS 6.22, PCDOS 7.1, DR-DOS, x-DOS, OD/2, CE6.0, CE7.0, Windows XP Professional, Windows Embedded Standard (XPE), POS Ready(WePOS), Embedded Linux, X-linux, QNX, Vxworks and FreeBSD.

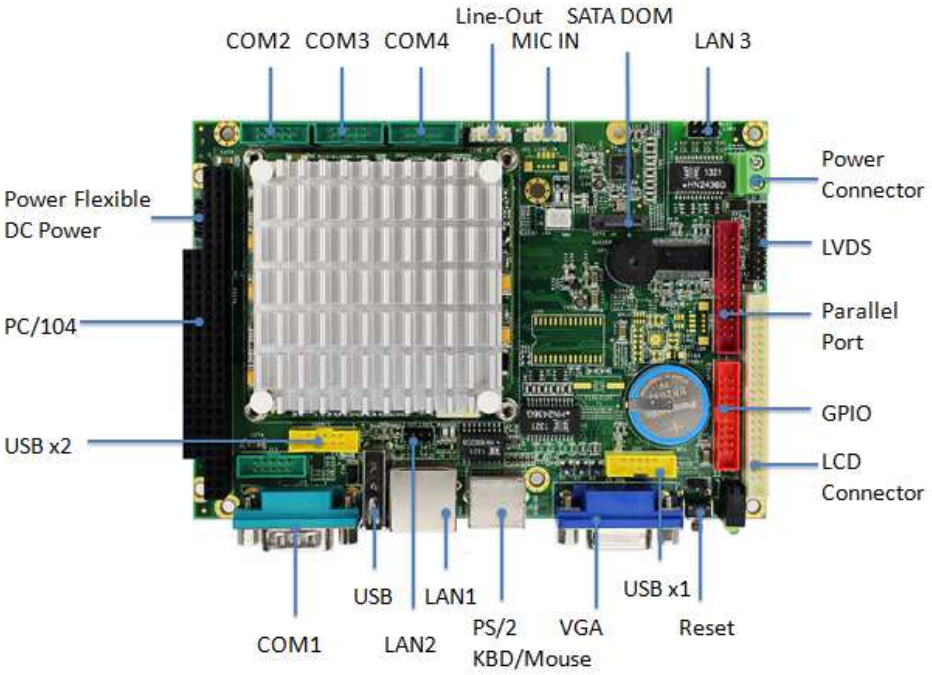
1.4 Board Dimension



Chapter 2

Installation

2.1 Board Outline



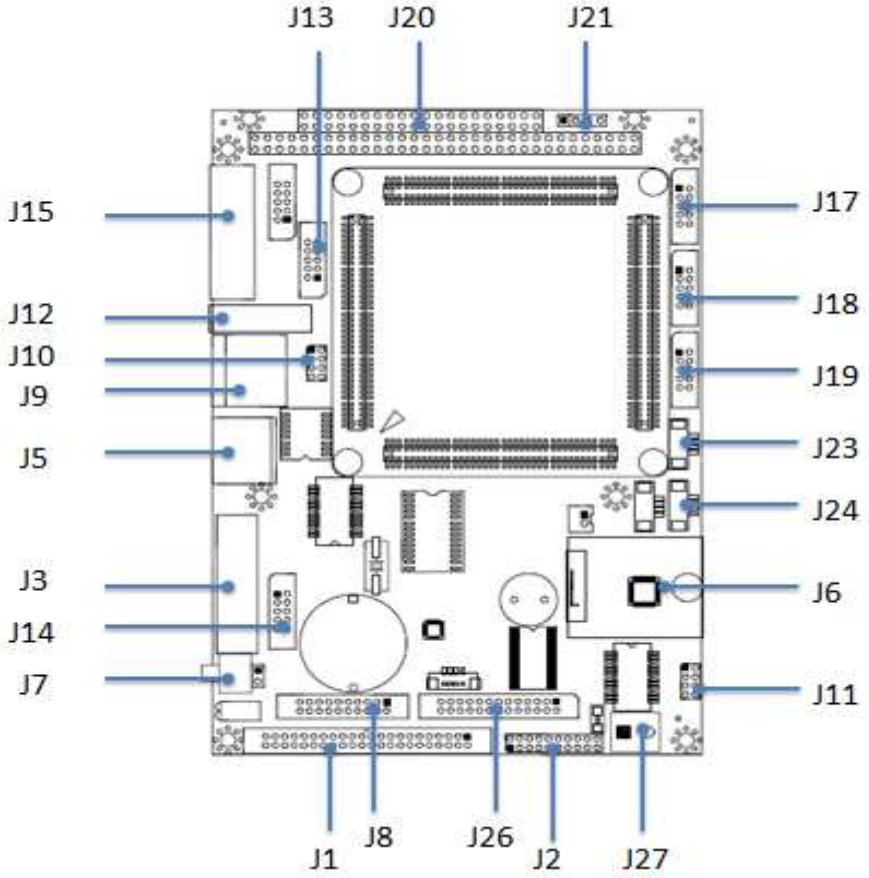
(Note1: COM RS232/485 is selected by BIOS setting)

(Note2: USB4 hot SWAP optional. USB4 has no function if hot SWAP is not selected)

(Note3: Touchscreen optional. No onboard SPI ROM if Touchscreen function is selected)

2.2 Connectors Location

Connectors



2.3 Connectors & Jumpers Summary

Summary Table

Nbr	Description	Type of Connections	Pin nbrs.
J1	LCD	Box Header, 2.0∅, 22x2	44-pin
J2	LVDS	Pin Header, 2.0∅, 10x2	20-pin
J3	VGA	Pin Header, 2.0∅, 5x2	10-pin
J4	SATA DOM	SATA 7P Connector, 7x1	7-pin
J5	PS/2 Keyboard / Mouse	Mini-DIN Female	6-pin
J6	SATA DOM Power	Box Header, 2.0∅, 1x2	2-pin
J7	Reset	Pin Header, 2.54∅, 1x2	2-pin
J8	GPIO(Port 0/1/PWMx16)	Box Header, 2.0∅, 10x2	20-pin
J9	10/100/1000 Ethernet LAN	RJ45 Connector	8-pin
J10	10/100 Ethernet LAN	Pin Header, 2.0∅, 4x2	8-pin
J11	10/100/1000 Ethernet LAN	Pin Header, 2.0∅, 4x2	8-pin
J12	USB2	USB connector	4-pin
J13	USB0&1	Box Header, 2.0∅, 5x2	10-pin
J14	USB3	Box Header, 2.0∅, 5x2	10-pin
J15	COM1(RS232/485/TTL/P4)	D-Sub Male	9-pin
J17	COM2(RS232/485/TTL/P5)	Box Header, 2.0∅, 5x2	10-pin
J18	COM3(RS232/485/TTL/P6)	Box Header, 2.0∅, 5x2	10-pin
J19	COM4(RS232/485/TTL/P7)	Box Header, 2.0∅, 5x2	10-pin
J20A	PC104 Connector – 64 pin	Box Header, 2.54∅, 32x2	64-pin
J20B	PC104 Connector – 40 pin	Box Header, 2.54∅, 20x2	40-pin
J21	4P Power Source (Interconnect to PC/104 – J20)	Pin Header, 2,54∅, 4x1	1-pin
J23	LINE-OUT	Wafer, 1.25∅, 4x1	4-pin
J24	MIC-IN	Wafer, 1.25∅, 4x1	4-pin
J25	Touch Screen (Optional)	Wafer, 1.25∅, 4x1	4-pin
J26	PRINT	Box Header, 2.0∅, 13x2	26-pin
J27	Power Connector	Terminal Block, 5.0∅, 2x1	2-pin
PWR-LED	Power Active LED (Red)	LED-SMD	
LED 3	LAN Link/Active LED (Green)	LED-SMD	
LED 4	LAN Duplex LED (Yellow)	LED-SMD	
SP1	BUZZER		

2.4 Pin Assignments & Jumper Settings

J1: LCD (DVO) Connector

Pin #	Signal Name	Pin #	Signal Name
1	+3.3V	2	+3.3V
3	LG2	4	LG3
5	LG4	6	LG5
7	NC	8	NC
9	LR0	10	LR1
11	LR2	12	LR3
13	LR4	14	LR5
15	GND	16	NC
17	NC	18	NC
19	NC	20	GND
21	NC	22	NC
23	LB0	24	LB1
25	LB2	26	LB3
27	LB4	28	LB5
29	NC	30	NC
31	LG0	32	LG1
33	GND	34	GND
35	NC	36	LCLK
37	NC	38	LDE
39	NC	40	LHSYNC
41	NC	42	LVSYNC
43	LBACKL	44	LVDDEN

(Please refer to Appendix A, for TFT Flat Panel Data Output)

J2: LVDS (24-bit support only)

Pin #	Signal Name	Pin #	Signal Name
1	VCC3 (+3.3V)	2	VCC3 (+3.3V)
3	GND	4	GND
5	RxIN0+	6	RxIN0-
7	RxIN1-	8	GND
9	GND	10	RxIN1+
11	RxIN2+	12	RxIN2-
13	CKIN-	14	GND
15	GND	16	CKIN+

17	RxIN3-	18	GND
19	GND	20	RxIN3+

J3: VGA

Pin #	Signal Name	Pin #	Signal Name
1	R OUT	2	GND
3	G OUT	4	GND
5	B OUT	6	GND
7	HSYNC	8	GND
9	VSYNCD	10	GND

J4: SATA DOM

Pin #	Signal Name	Pin #	Signal Name
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

J5: PS/2 Mouse

Pin #	Signal Name	Pin #	Signal Name
1	MSCLK	2	MSDATA
3	NC	4	GND
5	VCC		

J6: SATA DOM POWER

Pin #	Signal Name	Pin #	Signal Name
1	VCC	2	GND

J7: RESET

Pin #	Signal Name	Pin #	Signal Name
1	RST_SW	2	GND

J8: GPIO (Port 0/1 / PWMx16)

Pin #	Signal Name	Pin #	Signal Name
1	GND	2	VCC
3	GP00	4	GP10
5	GP01	6	GP11
7	GP02	8	GP12
9	GP03	10	GP13
11	GP04	12	GP14
13	GP05	14	GP15
15	GP06	16	GP16
17	GP07	18	GP17
19	VCC	20	GND

J9: LAN1 (RJ45)

Pin #	Signal Name	Pin #	Signal Name
1	GTX+	2	GTX-
3	GRX+	4	GTXC+
5	GTXC-	6	GRX-
7	GRXD+	8	GRXD-

J10: LAN2

Pin #	Signal Name	Pin #	Signal Name
1	ATX+	2	ATX-
3	ARX+	4	LED00
5	LED0+	6	ARX-
7	LED1+	8	LED1

J11: LAN3

Pin #	Signal Name	Pin #	Signal Name
1	GTX+1	2	GTX-1
3	GRX+1	4	GTXC+1
5	GTXC-1	6	GRX-1
7	GRXD+1	8	GRXD-1

J12: USB2 (USB type A)

Pin #	Signal Name	Pin #	Signal Name
1	VCC	2	LUSBD2-
3	LUSBD2+	4	GND
5	GGND	6	GGND
7	GGND	8	GGND

J13: USB0&1

Pin #	Signal Name	Pin #	Signal Name
1	VCC	2	VCC
3	LUSBD0-	4	LUSBD1-
5	LUSBD0+	6	LUSBD1+
7	GND	8	GND
9	GGND	10	GGND

J14: USB3&4 (Optional: USB4 hot SWAP)

Pin #	Signal Name	Pin #	Signal Name
1	VCC	2	VCC
3	LUSBD3-	4	LUSBD4-
5	LUSBD3+	6	LUSBD4+
7	GND	8	GND
9	GGND	10	GGND

***USB4 has no function if hot SWAP is not selected**

J15: COM1 RS232 / 485 D-SUB 9 pin (Optional: TTL / GPIO-P4)

Pin #	Signal Name	Pin #	Signal Name
1	DCD1 / 1RS485-	2	RXD1 / 1RS485+
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	NC

J17: COM2 RS232 / 485 (Optional: TTL / GPIO-P5)

Pin #	Signal Name	Pin #	Signal Name
1	DCD1/ 1RS485-	2	RXD1/ 1RS485+
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	NC

J18: COM3 RS232 / 485 (Optional: TTL / GPIO-P6)

Pin #	Signal Name	Pin #	Signal Name
1	DCD1/ 1RS485-	2	RXD1/ 1RS485+
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	NC

J19: COM4 RS232 / 485 (Optional: TTL / GPIO-P7)

Pin #	Signal Name	Pin #	Signal Name
1	DCD1/ 1RS485-	2	RXD1/ 1RS485+
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	NC

J20A: PC104 Connector – 64pin

Pin #	Signal Name	Pin #	Signal Name
1	IOCHCHK *	2	GND
3	SD7	4	RESETDRV
5	SD6	6	VCC
7	SD5	8	IRQ9
9	SD4	10	-5V
11	SD3	12	DRQ2
13	SD2	14	-12V
15	SD1	16	OWS
17	SD0	18	+12V
19	IOCHRDY	20	GND
21	AEN	22	SMEMW *
23	SA19	24	SMEMR *
25	SA18	26	IOW *
27	SA17	28	IOR *
29	SA16	30	DACK3 *
31	SA15	32	DRQ3
33	SA14	34	DACK1 *
35	SA13	36	DRQ1
37	SA12	38	REFRESH *
39	SA11	40	SYSCLK
41	SA10	42	IRQ7
43	SA9	44	IRQ6
45	SA8	46	IRQ5
47	SA7	48	IRQ4
49	SA6	50	IRQ3
51	SA5	52	DACK2 *
53	SA4	54	TC
55	SA3	56	BALE
57	SA2	58	VCC
59	SA1	60	OSC
61	SA0	62	GND
63	GND	64	GND

J20B: PC104 Connector – 40pin

Pin #	Signal Name	Pin #	Signal Name
1	GND	2	GND
3	MEMCS16 *	4	SBHE *
5	IOCS16 *	6	SA23
7	IRQ10	8	SA22
9	IRQ11	10	SA21
11	IRQ12	12	SA20
13	IRQ15	14	SA19
15	IRQ14	16	SA18
17	DACK0 *	18	SA17
19	DRQ0	20	MEMR *
21	DACK5 *	22	MEMW *
23	DRQ5	24	SD8
25	DACK6 *	26	SD9
27	DRQ6	28	SD10
29	DACK7 *	30	SD11
31	DRQ7	32	SD12
33	VCC	34	SD13
35	MASTER *	36	SD14
37	GND	38	SD15
39	GND	40	NC

J21: 4P Power Source (Interconnect to PC/104 – J20)

Pin #	Signal Name
1	-5V
2	-12V
3	+12V
4	GND

J23: LINE OUT

Pin #	Signal Name
1	LOUTR
2	GND
3	GND
4	LOUTL

J24: MIC-IN

Pin #	Signal Name
1	MICVREF
2	GND
3	GND
4	MIC-IN

J25: Touch Screen (Optional)

Pin #	Signal Name
1	Y-
2	X-
3	Y+
4	X+

***No onboard SPI ROM if Touch Screen function is selected**

J26: PRINT

Pin #	Signal Name	Pin #	Signal Name
1	STB-	14	AFD-
2	PD0	15	ERR-
3	PD1	16	INIT-
4	PD2	17	SLIN-
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK-	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

J27: Power Connector (Terminal Block 5.0mm)

Pin #	Signal Name
1	+5V
2	GND

2.5 System Mapping

System Mapping

Memory Mapping

Address	Description	Usage
00000000 - 0009FFFF	System RAM	*
000A0000 - 000AFFFF	EGA/VGA Video Memory	*
000B0000 - 000B7FFF	MDA RAM, Hercules graphics display RAM	*
000B8000 - 000BFFFF	CGA display RAM	*
000C0000 - 000C7FFF	EGA/VGA BIOS ROM	*
000C8000 - 000CFFFF	Boot ROM enable	
000CC000 - 000CFFFF	Console Redirection enable	
000D0000 - 000D7FFF	Expansion ROM space	
000D8000 - 000DBFFF	SPI FLASH Emulation Floppy A Enable	
000DC000 - 000DFFFF	Expansion ROM Space	
000E0000 - 000EFFFF	USB Legacy SCSI ROM space	
000F0000 - 000FFFFF	Motherboard BIOS	*
FEBDE000 – FEBDE0FF	Standard OpenHCD USB Host Controller	*
FEBDFC00 - FEBDFCFF	On board Ethernet Adapter	*

I/O Mapping

I/O Address	Owner	Usage
0000h - 000Fh	DMA 8237-1	*
0010h - 0017h	COM 9	
0020h - 0021h	PIC 8259-1	*
0022h - 0023h	Indirect Access Registers (6117D configuration port)	*
002Eh - 002Fh	Forward to LPC BUS	

0040h - 0043h	Timer Counter 8254	*
0048h - 004Bh	PWM counter 8254	*
004Eh - 004Fh	Forward to LPC BUS	
0060h	Keyboard / Mouse data port	*
0061h	Port B + NMI control port	*
0062h - 0063h	8051 download 4k address counter	*
0064h	Keyboard/ Mouse status/ command port	*
0065h	WatchDog0 reload counter	*
0066h	8051 download 8bit data port	*
0067h	WatchDog1 reload counter	*
0068h - 006Dh	WatchDog1 control counter	*
0070h - 0071h	CMOS RAM port	*
0072h - 0075h	MTBF control register	*
0078h - 007Ch	GPIO port 0,1,2,3,4 default setup	*
0080h - 008Fh	DMA page register	*
0092h	System control register	*
0098h - 009Ch	GPIO direction control	*
00A0h - 00A1h	PIC 8259-2	*
00C0h - 00DFh	DMA 8237-2	*
00E0h – 00EFh	DOS 4G Page access	*
0170h – 0177h	IDE1(IRQ 15)	
01F0h – 01F7h	IDE0 (IRQ 14)	*
0220h – 0227h	COM8 Forward to LPC BUS	
0228h – 022Fh	COM7 Forward to LPC BUS	
0238h – 023Fh	COM6 Forward to LPC BUS	
0278h – 027Fh	Printer port (IRQ7, DMA 0)	*

0040h - 0043h	Timer Counter 8254	*
0048h - 004Bh	PWM counter 8254	*
004Eh - 004Fh	Forward to LPC BUS	
0060h	Keyboard / Mouse data port	*
0061h	Port B + NMI control port	*
0062h - 0063h	8051 download 4k address counter	*
0064h	Keyboard/ Mouse status/ command port	*
0065h	WatchDog0 reload counter	*
0066h	8051 download 8bit data port	*
0067h	WatchDog1 reload counter	*
0068h - 006Dh	WatchDog1 control counter	*
0070h - 0071h	CMOS RAM port	*
0072h - 0075h	MTBF control register	*
0078h - 007Ch	GPIO port 0,1,2,3,4 default setup	*
0080h - 008Fh	DMA page register	*
0092h	System control register	*
0098h - 009Ch	GPIO direction control	*
00A0h - 00A1h	PIC 8259-2	*
00C0h - 00DFh	DMA 8237-2	*
00E0h – 00EFh	DOS 4G Page access	*
0170h – 0177h	IDE1(IRQ 15)	
01F0h – 01F7h	IDE0 (IRQ 14)	*
0220h – 0227h	COM8 Forward to LPC BUS	
0228h – 022Fh	COM7 Forward to LPC BUS	
0238h – 023Fh	COM6 Forward to LPC BUS	
0278h – 027Fh	Printer port (IRQ7, DMA 0)	*

02E8h – 02EFh	COM4 (IRQ 11)	*
02F8h – 02EFh	COM2 (IRQ3)	*
0338h – 033Fh	COM5 Forward to LPC BUS	
0376h	IDE1 ATAPI device control write only register	*
03E8h – 03EFh	COM3 (IRQ 10)	*
03F0h – 03F7h	Floppy Disk (IRQ6, DMA2)	
03F6h	IDE0 ATAPI device control write only register	*
03F8h – 03FFh	COM1 (IRQ 4)	*
0480h – 048Fh	DMA High page register	*
0490h – 0499h	Instruction counter register	*
04D0h – 04D1h	8259 Edge / level control register	*
0CF8h – 0CFFh	PCI configuration port	*
DE00h – DEFFh	On board LAN	*
FC00h – FC05h	SPI Flash BIOS control register	*
FC08h – FC0Dh	External SPI BUS control register	*

IRQ Mapping

IRQ#	Description	Usage
IRQ0	System Timer	*
IRQ1	Keyboard Controller	*
IRQ2	Cascade for IRQ8 – 15	
IRQ3	Serial Port 2	*
IRQ4	Serial Port 1	*
IRQ5	USB	*

IRQ6	USB	*
IRQ7	USB/ Ethernet 10/100M LAN	*
IRQ8	Real Time Clock	*
IRQ9	Multimedia Device	*
IRQ10	Serial Port 3	*
IRQ11	Serial Port 4	*
IRQ12	Mouse	*
IRQ13	Math Coprocessor	*
IRQ14	Hard Disk Controller#1	*
IRQ15	Hard Disk Controller#2	*

DMA Mapping

DMA#	Description	Usage
DMA0		
DMA1		
DMA2	Floppy Disk Controller	
DMA3		
DMA4		
DMA5		
DMA6		
DMA7		

2.6 Watchdog Timer

There are two watchdog timers in Vortex86SX/DX/DX2 CPU. One is compatible with M6117D watchdog timer and the other is new. The M6117D compatible watchdog timer is called WDT0 and new one is called WDT1.

We also provide DOS, Linux and WinCE example for your reference. For more technical support, please visit: http://dmp.com.tw/tech

2.7 GPIO (General Purpose Input / Output)

20 GPIO pins (16 channels without ACC and Ground) are provided by the Vortex86DX2 for general usage in the system. All GPIO pins are independent and can be configured as inputs or outputs, with or without pull-up/pull-down resistors.

We also offer DOS, Linux and WinCE example for your reference. For more technical support, please visit: http://www.dmp.com.tw/tech

2.8 SPI flash (Serial Peripheral Interface)

As SPI Flash (Serial Peripheral Interface) offers many benefits including: reduced controller pin count, smaller and simpler PCBs, reduced switching noise, less power consumption, and lower system cost

Many of users may consider using a formatted SPI flash to boot for the system or emulate SPI flash as Floppy (A: Driver or B: Driver). Then you must know how to set for this condition in CMOS Setup and boot up under DOS 6.22, X-DOS, DR-DOS and Free DOS.

For more technical support, please visit: http://dmp.com.tw/tech

2.9 PWM (Pulse-width modulation)

Pulse-width modulation (PWM) of a signal or power source involves the modulation of its duty cycle, to either convey information over a communications channel or control the amount of power sent to a load.

The popular applications of pulse width modulation are in speed control of electric motors, volume control of Class D audio amplifiers or brightness control of light sources and many other power electronics applications.

The Vortex86DX2 SoC integrated 16 channels of PWM interface enabling the Automation, robotic industry to a New Age x86 SoC platform and we also offer the sample code of PWM which will guide the engineer to control the PWM functionality smoothly.

For more inquire of this sample code that please contact our sales team or mail to: info@icop.com.tw

Chapter 3

Driver Installation

VGA
The Vortex86DX2 processor integrated a 2D VGA chip within. It is capable in providing VGA display resolution up to 1280x1024 and also support TFT/ LVDS flat panel while share system memory of 16MB/ 32MB.

LAN
The Vortex86DX2 processor also integrated 10/100Mbps Ethernet controller that supports both 10/100BASE-T and allows direct connection to your 10/100Mbps Ethernet based Local Area Network for full interaction with local servers, wide area networks such as the Internet.

The controller supports: Half / Full-Duplex Ethernet function to double channel bandwidth, auto media detection.

For using 1000Mbps LAN, please download the corresponding drivers at the following link: Drivers for RTL8111F and if you have any question about it, please contact us at info@icop.com.tw

HD Audio
Besides the above mentioned, the Vortex86DX2 processor includes an ALC 262 (HD Audio) in the CPU as well.

Operating system support
The Vortex86DX2-6526 3.5" CPU board supports embedded software: Free DOS, DOS 6.22, PCDOS 7.1, DR-DOS, x-DOS, OS/2, Windows CE 6.0, Windows XP Professional, and Windows Embedded standard (XPE). Windows 7 is not officially supported but we have drivers for your testing.

For drivers, please visit DMP official website: http://dmp.com.tw/tech for them and if you cannot locate them, please mail us at info@icop.com.tw

Vortex86DX2-6526 also supports most of the popular Linux distributions, for more detail information, please also visit DMP official website: http://dmp.com.tw/tech

Appendix

A. TFT Flat Panel Data Output

LCD Pin	Vortex86MX+/DX2 PIN NAME	DIGITAL 18-BIT	RGB 24-BIT
1	LCDVCC(+3.3V)	VDD	VDD
2	LCDVCC(+3.3V)	VDD	VDD
3	FPD12	G2	G4
4	FPD13	G3	G5
5	FPD14	G4	G6
6	FPD15	G5	G7
7	FPD16	/	R0
8	FPD17	/	R1
9	FPD18	R0	R2
10	FPD19	R1	R3
11	FPD20	R2	R4
12	FPD21	R3	R5
13	FPD22	R4	R6
14	FPD23	R5	R7
15	GND	VSS	VSS
16	NC	/	/
17	NC	/	/
18	NC	/	/
19	NC	/	/
20	GND	VSS	VSS
21	FPD0	/	B0
22	FPD1	/	B1
23	FPD2	B0	B2
24	FPD3	B1	B3
25	FPD4	B2	B4
26	FPD5	B3	B5
27	FPD6	B4	B6
28	FPD7	B5	B7
29	FPD8	/	G0
30	FPD9	/	G1
31	FPD10	G0	G2
32	FPD11	G1	G3
33	GND	VSS	VSS
34	GND	VSS	VSS
35	NC	/	/
36	FP1CLK	XCLK	XCLK
37	NC	/	/
38	FP1DE	DEN	DEN
39	NC	/	/
40	FP1HS	HSYNC	HSYNC
41	NC	/	/
42	FP1VS	VSYNC	VSYNC
43	FPENBLT	ADJ	ADJ
44	FPENVDD	VDDEN	VDDEN

B. TFT Flat Panel Support List

Size	Brand	Resolution	Model No.
3.5”	Planar	160x120	EL320.240.36-HB
5.7”	Planar	320x240	EL160.120.39
5.7”	TOSHIBA	320x240	LTA057A343F
5.7”	Sharp	320x240 (QVGA/VGA)	LQ057Q3DC02
5.7”	Data Image	640x480	FG050710DSSWJG01/DG01
5.7”	Ampire	640x480	AM-640480GTMQW-T00H
6.4”	PVI	640x480	PD064VT5
6.4”	LG	640x480	LB064V02
6.5”	Optrex	640x480	T-51750GD065J-FW-ADN
7”	Ampire	800x480	AM-80480STMQW-TA0
7”	Data Image	800x480	FG0700A0DSSWBG01
7”	URT	800x480	UMSH-8173MD-1T
7”	Emerging Display	800x480	ET0700G0DH6
7”	Innolux	800x480	AT070TN83 V.1 (10131)
8”	Sharp	640x480	LQ080V3DG01
10.4”	Toshiba	640x480	LTD104C11S
10.4”	Optrex	640x480	T-55532D104J-LW-A-AAN
12.1”	LG	800x600	LB121S03

C. LVDS Flat Panel Support List

Approved LVDS Flat Panel List

Size	Brand	Resolution	Model No.
5.7”	AMPIRE	640x480	AM-640480G4TNQW
6.5”	AUO	640x480	G065VN01
7”	HannStar	800x480	HSD070LDW1
7”	Ampire	800x480	AM-800480R3TMQW
8.4”	AUO	800x600	G084SN03 V3
8.9”	CPT	1024x600	CLAA089NA0ACW
8.9”	HannStar	1024x600	HSD089IFW1
10.1”	HannStar	1024x600	HSD100IFW1
10.1”	AUO	1024x600	B101AW06_V0
10.4”	AUO	800x600	G104SN02 V2
10.4”	Ampire	800x600	AM-800600LTNQW
12.1”	AUO	800x600	G121SN01
15”	AUO	1024x768	G150XG01

D. Flat Panel Wiring and Lighting

Hardware

Before you connect the TFT LCD Flat Panel with Vortex86DX2-6526, please make sure that the input Voltage of LCD is + 3.3V or Not

BIOS

Please contact or e-mail our regional sales to get the special BIOS for the any TFT LCD Flat Panels.

Wiring LCD Cable

Please refer to Page 9 (J1: LCD connector) and Page 27~29. If you have further questions about LCD lighting and integration service, please contact our regional sales or mail to info@icop.com.tw

E. TCP/IP library for DOS real mode

DSock is a TCP/IP library for DOS real mode, which is used by RSIP. It provides simple C functions for programmer to write Internet applications. ICOP also provide Internet examples using DSock: BOOTP/DHCP, FTP server, SMTP client/server, HTTP server, TELNET server, Talk client/server, etc.

DSock provides a lot of example source code. Programmer can add Internet functions to their project easily and save development time. With a utility "MakeROM", programmer also can make a ROM image to fit their application, those examples can be seen in the following Application systems: Mity-Mite Serial Server, Web Camera Tiny Server and RSIP Serial Server.

DSock is free for All ICOP products using M6117D/ Vortex86/ Vortex86SX/ Vortex86DX/ Vortex86DX2 CPU and ICOP also provide the business version of DSock for those customers who are using other x86 CPUs.
If you would like to use DSock or business version of DSock, Please mail to info@icop.com.tw or contact your regional sales.

Please download the trial DSock software and Utilities from our website:
http://www.dmp.com.tw/tech/dmp-lib/dsock/

F. BIOS Default setting

If the system cannot be booted after BIOS changes are made, Please follow below procedures in order to restore the CMOS as default setting.

- Press **"End"** Key, when the power on

- Press **<Del>** to enter the AMI BIOS setup
- Press **"F9"** to Load Optimized Defaults
- Press **"F10"** to Save configuration changes and exit setup

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster. Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, originality to use this product. Vendor will not be liable for any claim made by any other related party. Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.